Syllabus

PHY 3323 – Electromagnetism 1 – Spring 2026

Instructor: Edwin Pedrozo Penafiel, Department of Physics
Office: NPB 2253, tel 352-273-1277
Class details: Synchronous in person lectures, M, W, F 4th Period (10:40 AM -11:30 AM).
Email: epedrozo@ufl.edu.

Office hours (tentative): M, 1:55 to 2:45 PM (7rd period) and Tu 8:30 to 9:20 AM (2th period). Should you need to talk to me outside office hours, feel free to email me so that we can schedule an appointment.

Email Correspondence with Instructor: The Instructor will attempt to respond, within nominally 24 hours of regular business days, to email within the UF e-Learning system (ELS Canvas system) or from UF email accounts if the message contains the name of the student AND the subject line starts with PHY3323. Email will not be sent to email addresses outside the UF-domain (ufl.edu)

Class website: Class syllabus and calendar, assignments, extra material, exams and relevant announcements will all take place on the class Canvas website (www.ufl.instructure.com/courses for login).

Prerequisites: Physics 2 (PHY 2049, PHY 2061 or equivalent) and Introductory Differential Equations (MAP 2302 or equivalent).

Textbook: Introduction to Electrodynamics, 4th Edition, (Cambridge University Press) by D. J. Griffiths.

Supplementary textbook: Students looking for more supplementary information can look at Feynman Lectures on Physics Vol. 2 (Pearson Addison Wesley). This textbook is however not required for the course.

Course description:
Starting from the jolts of electricity that carry and process information in your brain, electrical and magnetic phenomenon surround our everyday life. Beyond the electricity that is being used by most of your appliances and smart devices, friction and the normal force, radio and WIFI communications, visible light and related corrective apparatus as well as the fact that we

are not burnt to a crisp by the sun's ray can all be explained within electromagnetic theory. PHY 3323 is the first course of a series of 2 for undergraduate level electrodynamics. It covers electro- and magneto-statics both in the vacuum and inside matter, which corresponds to the first 6 chapters of the textbook. Chapters 7 and beyond are covered in the second course in the series, EM2 (PHY 4324). A significant portion of the material covered in this course should have already been covered through prior studies. These concepts will be revisited using more powerful mathematical tools and expanded to more challenging applications. By the end of the course, students will be expected to have the knowledge and the mathematical machinery to solve standard problems in the static aspect of electromagnetism and have a conceptual understanding of the subject. Problems dealing with evolving charge and currents configurations will be the subject of the second course in the series, and more specialized problems are the subjects of discipline-specific advanced courses.

Course Learning Goals: At the end of the course, you will be expected to show familiarity and understanding of various aspects of electromagnetism theory such as:

1) Electro and magnetostatics fields and forces
2) Electrical potential and magnetic vector potential
3) Separation of variable methods for solving boundary value electro- and magnetostatic problems
4) Multipole expansions
5) Electric and magnetic field in matter

You should be able to showcase your grasp of these subjects by:

i) Providing qualitative explanations of complex systems/phenomenon
ii) Performing order of magnitude estimates
iii) Symbolically solving problems

Course expectations: Students enrolling in this class should be comfortable with calculus I and II: vector calculus, differentiation, integration and trigonometry. Students are also expected to be able to solve ordinary differential equations and be familiar with multi-variable calculus in Cartesian, spherical and cylindrical geometries, as well as line and surface integrals. There is no secret to success in this class. If you attend class, read the textbook ahead of times, review the class notes, and work the problems and examples diligently, then you will learn the material. I cannot stress how important learning to solve the problems on your own is. Simply reading out the solutions is generally insufficient to learn the material! On average, you are expected to devote 6 to 10 hours a week (outside of classes) to keep up with the material. If at any time there is a question in your mind, either during classes or outside of classroom hours, please do not hesitate to talk to the instructor. All exams and quizzes will be “closed-book” and no notes and/or calculator will be allowed. Essential mathematical formulas/expressions will be

provided, and they will be shared with the class ahead of time. However, you will be expected to know the most important physics equations and formulas.

Grading

Homework: HW will be assigned almost every week. I strongly encourage everybody to come up with the solutions on their own, and not to look up the answers online. Doing so will be great beneficial to your understanding of the material and to your performance during the other examinations.

Quizzes: Quizzes will be held in class, will last 50 minutes and will consist of 1-3 slightly modified homework problems / In-class group assignment / textbook example. One question might also include additional recommended problems. Each quiz will cover the material that has been covered since the last quiz/exam.

Exams: There will be 1 Midterm (Modules 1 to 4) and 1 Final (Modules 5 to 7). Please check the Course Calendar for the exam time and date.

Policy on missed Exam and Make-up exam: Consistent with university policies that can be found at https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Only one make-up exam will be provided near the end of the semester. The make-up exam will be a comprehensive test which covers the materials up to Exam 4.

Composition of Grade (Total 100)

Quizzes	20
HWs	10
Midterm	35
Final Exam	35

Projected Grading: The grading scheme is outlined below. **The passing grade for Physics major is C** or above. More information is available in the University official grading policies: https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	E
Scale (%)	85 - 100	80 - 84.9	75 - 79.9	70 - 74.9	65 - 69.9	60 - 64.9	55 - 59.9	50 - 54.9	45 - 49.9	40 - 44.9	0 - 39.9
Grade Point	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.67	1.33	1.0	0.0

If any student has concerns/difficulties, please contact the instructor in a timely fashion.

Attendance: Students are expected to attend lectures since material outside the textbook will be presented. Unless otherwise stated, all materials covered in the text and in class are relevant for any graded exercise. The established UF Attendance Polies will be followed.

Students will be expected to have read the relevant material before coming to class. The material covered in the textbook will be quickly covered in class, and a large section of the lectures will consist of illustrating concepts with examples, discussing additional material omitted in the text, pointing out subtle points and common mistakes, and asking questions to clarify misconceptions.

Make-Up of Graded Material: Consistent with university policies described elsewhere (https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/#absencestext), students will be allowed to make-up graded material. In most circumstances, the reason for the make-up will need to be documented by a note typically from a medical doctor, an attorney, or a UF official. Notes from family members are not acceptable. When possible, the student should inform the Instructor in advance of absences or delays in completing graded assignments. Please note that if you are not allowed on campus (https://wellness.ufl.edu/), then please do not come to class.

UF policy for "In-Class Recording": "Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor." A "class lecture" is "an educational presentation delivered by faculty or guest lecturer, as part of a University of Florida course, intended to inform or teach enrolled students about a particular subject. Class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving student participation, assessments (quizzes, test, exams), field trips, private conversations between students in the class or between a student and the faculty or guest lecturer during a class session." Publication without permission of the instructor is prohibited. To "publish" means "to share, transmit, circulate, distribute or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of the recording, is considered to be published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, website, book, magazine, newspaper or leaflet."

Ref: UF Regulation 4.040 Student Honor Code and Student Conduct Code - https://policy.ufl.edu/regulation/4-040/

Special Notes about the Syllabus: Please note that the dates for all graded materials, except the Final Exam, are TENTATIVE. The schedule will be finalized during the course and will be announced in class and posted to the "in vivo" schedule and updated on the course UF ELS Canvas page.

Calendar (tentative):

Please note that an updated calendar will be kept up to date on the Canvas website.

Date	Topics	Notes (Tentative exams/quizzes dates)
Jan. 12, 14, 16	Module 1	
Jan. 21, 23	Module 1	
Jan. 26, 28, 30	Module 2	
Feb. 2, 4, 6	Module 2	Feb. 2 – Quiz 1 on Module 1
Feb. 9, 11, 13	Module 3	
Feb. 16, 18, 20	Module 3	Feb. 16 – Quiz 2 on Module 2
Feb. 23, 25, 27	Module 4	
Mar. 2, 4, 6	Module 4	Mar. 2 – Quiz 3 on Module 3
Mar. 9, 11, 13	Module 5	Mar. 13 – Midterm – Modules 1 to 4
Mar. 23, 25, 27	Module 5	
Mar. 30, Apr. 1, 3	Module 6	
Apr. 6, 8, 10	Module 6	Apr. 6 – Quiz 4 on Module 5
Apr. 13, 15, 17	Module 7	
Apr. 20, 22	Module 7	

Final Exam is on May 1 from 7:30 - 9:30 AM @ NPB 1002.

Incomplete Policy:

A grade of incomplete is typically given to students who endure a situation in which they are incapable of completing the coursework. The I-grade is not to be given to students who are simply dissatisfied with their performance in the course. If you find you are in a situation that might qualify you for an I-grade in this course and you want to pursue this potential option, then you must contact me immediately and be sure to have the necessary documentation from

a medical doctor or an attorney. Again, letters from family members are not acceptable. A letter of understanding indicating when and how the incomplete grade will be made up will eventually be drafted and signed by the student and the Instructor. A PDF of the policy is posted at: http://www.phys.ufl.edu/downloads/gradepolicy.pdf.

Grading adjustments:

The graded material will be returned by email in a timely manner, typically within one-week of submission. If students notice an error or are dissatisfied with the grading, they should contact the instructor within 2 days of receiving it, and set-up a time to review the grading. Failure to do so will result in the student relinquishing the opportunity to review the grading.

STUDENTS with DISABILITIES:

Students who require accommodation for disabilities/learning barriers must first contact the Dean of Students Office. That office will provide documentation, which the student must bring to his/her instructors AS SOON AS POSSIBLE. Contact the Disability Resources Center (352-3928565 or https://disability.ufl.edu/students/get-started/) for information about available resources for students with disabilities.

Academic Honesty: Each student is expected to generate graded work by an individual and original effort and (e.g., usually a zero grade is given on the assignment). Please review the University Policies on Academic Honesty, and links are https://policy.ufl.edu/regulation/4-040/ and https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/. Note that the process is one that involves the faculty member and the students:

> *"Academic honesty and integrity are fundamental values of the University. Students commit to holding themselves and their peers to the high standard of honor required by the Student Honor Code. Any Student who becomes aware of a violation of the Student Honor Code is encouraged to report the violation to the appropriate University Official."*

Fabrication or falsification of excuses or related documentation is also a violation of the UF academic honesty policy. Violations of this policy will be dealt with severely. There will be no warnings or exceptions.

General Classroom Behavior: Please avoid having distracting audio or visual events occur during class. Use of electronics in the classroom, if used, are to be related to the course material only. Suggestion: Be careful of using non-UF based "chat" methods as behavior on any non-UF based platforms because they may be considered outside the extent of the UF Honor Code.

Online course evaluation: Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via

GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at gatorevals.aa.ufl.edu/public-results/.

COUNSELING, MENTAL HEALTH and ADDITIONAL RESOURCES:

Advising and Counseling: Due to the nature of the environment at the university, it is not uncommon for students to experience stressful situations, and "study harder" sometimes does not seem to work. If you find yourself in this situation, you are encouraged to seek confidential counseling, see: http://www.counseling.ufl.edu/cwc/.

U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website (https://umatter.ufl.edu/) to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit the Counseling and Wellness Center website (https://counseling.ufl.edu/) or call 352-392-1575 for information on crisis services as well as noncrisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the Student Health Care Center website (https://shcc.ufl.edu/).

University Police Department: Visit UF Police Department website (https://police.ufl.edu/) or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the UF Health Emergency Room and Trauma Center website (https://ufhealth.org/emergency-roomtrauma-center).

E-learning technical support: Contact the UF Computing Help Desk (https://helpdesk.ufl.edu/) at 352-392-4357 or via e-mail at helpdesk@ufl.edu.

Career Connections Center: Reitz Union Suite 1300, 352-392-1601 (https://career.ufl.edu/). Career assistance and counseling services.

Library Support: Various ways to receive assistance with respect to using the libraries or finding resources (https://cms.uflib.ufl.edu/ask).

Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring (https://teachingcenter.ufl.edu/).

Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

Student Complaints On-Campus: Visit the Student Honor Code and Student Conduct Code webpage for more information (https://sccr.dso.ufl.edu/policies/student-honor-%20code-student-conductcode/).

On-Line Students Complaints: View the Distance Learning Student Complaint Process (https://distance.ufl.edu/getting-help/student-complaint-process/).